

New Flea Weevils of the Genus *Sphaerorches* (Coleoptera, Curculionidae) from Laos

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Abstract Two new species of the flea weevils of the genus *Sphaerorches* MORIMOTO et MIYAKAWA, 1996 are described from Laos under the names *S. laokao* sp. nov. and *S. laensis* sp. nov. Probable host association of the genus with Lauraceae is suggested for the first time.

Flea weevil genus *Sphaerorches* is very unique in the spherical body form and the slender rostrum among the tribe Rhamphini. Three species have ever been known from Japan, Nepal and Borneo (MORIMOTO & MIYAKAWA, 1996). Sister group relationship with *Imachra* PASCOE, 1874 has been suggested based on several synapomorphic characters in their phylogenetic analysis and constitute a distinct clade with *Synorches* VOSS, 1958 among the tribe (KOJIMA & MORIMOTO, 1996). No information has ever been available on biology.

Two new species of the genus were found from Laos, the intervening area of their known distribution. Both of them were captured on the laurel family trees.

The type materials are preserved in the Laboratory of Entomology, Tokyo University of Agriculture, Atsugi, Kanagawa, Japan.

Sphaerorches laokao sp. nov.

(Figs. 1–4, 9–13)

Male. Length: 1.9–2.0 mm; width: 1.2–1.3 mm.

Black, antennal scape and often funicle, apex of rostrum and tarsi brownish, elytra reddish brown except for apical and sometimes basal parts, underside often dark reddish brown, clothed with grayish hairy scales, which are replaced by dark one on reddish brown parts of elytra and those on mesosternum plumose and dense on mesepimera.

Forehead between eyes linear, with row of setae. Eyes at lower margin close to ventral margin of rostrum at base in lateral aspect. Rostrum weakly curved, 1.8–1.9 times as long as pronotum, with antennal insertion at middle. Antennae with length (width) of segments from scape to club as 36 (5): 10 (4): 8 (2): 6 (2.5): 4 (3): 3 (3): 3 (4): 6 (7): 7 (7.5): 14 (6).

Pronotum 1.9 times as broad as long, rounded at posterior corners, dorsum densely

punctate, interstices between them much narrower than their diameter. Scutellum ovate, similarly scaled as on neighboring areas. Elytra slightly longer than broad, broadest a little behind humeri, evenly rounded at sides to apex, evenly convex dorsally; intervals broader than striae, each with three to four rows of scales. Pygidium perpendicular, weakly convex, and densely punctate. Fore and middle legs almost of the same size and shape to each other, hind femora swollen, 2.2 times as long as broad, tarsal groove of hind tibia fringed with blackish spines along apical margin.

Prosternal process simple at apex, sternellum nodulose on each corner between coxae. Mesosternal process declivitous, subtruncate at apex, weakly convex at each corner. Metasternum trapezoidally depressed.

Female. Length: 2.1–2.2 mm; width: 1.4–1.5 mm. Similar to male except for antennae inserted behind middle of rostrum, the latter twice as long as pronotum, venter with first ventrite weakly inflated in middle.

Type material. Holotype: male, Ban Saleui~Phou Pan (alt. 1,460 m), Houaphan Prov., Laos, 24–VIII–2009, H. KOJIMA. Paratypes: 7 males and 6 females, same data as the holotype; 3 males and 1 female, 12–VI–2009, H. KOJIMA; 1 male, 21–VIII–2009, H. KOJIMA.

Etymology. Derived from the Laotian name of a local liquor.

Distribution. Laos (Houaphan Prov.).

Comments. This species is characterised by the coloration. One pair of Thai specimens quite similar to this species are in my collection, but the black and red contrast is more vivid and I herein hesitate to regard them as being conspecific with this species until more materials are available.

Biological notes. Weevils were captured on the laurel family trees.

Sphaerorchestes laoensis sp. nov.

(Figs. 5–8, 14–18)

Male. Length: 2.4 mm; width: 1.6 mm.

Reddish brown, head, pronotum, femora dorsally often slightly darker, eyes and antennal club blackish, clothed with grayish hairy scales, which are a little shorter and yellowish on dorsal area of elytra and those on venter bi- or trifid.

Forehead and rostrum as in *S. laokao*. Eyes at lower margin on middle level of rostrum at base in lateral aspect. Antennae with length (width) of segments from scape to club as 42 (6): 13 (5): 10 (3): 6 (3): 5 (3.5): 4 (3.5): 4 (5): 8 (8): 8 (9): 9 (8).

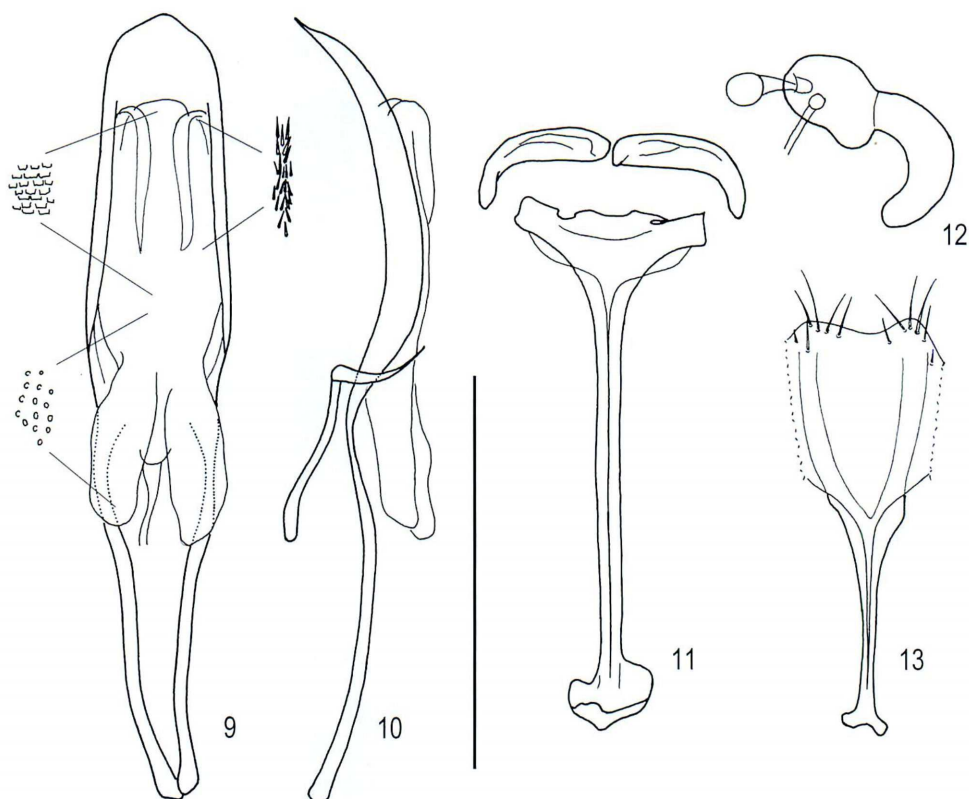
Pronotum and scutellum as in *S. laokao* except for the former twice as broad as long. Elytra and pygidium as in *S. laokao* except for the former 1.1–1.2 times as long as broad and intervals each with four to five rows of scales. Legs as in *S. laokao* except for hind femora 2.1 times as long as broad.

Pro-, meso- and metasterna and ventrites as in *S. laokao*.

Female. Length: 2.5 mm (2.2 mm in a small specimen); width: 1.7 mm (1.4 mm in a small specimen). Similar to male except for antennae inserted behind middle of



Figs. 1-8. Habitus photographs of the Laotian *Sphaerorchestes* spp. — 1-4, *S. laokao* sp. nov. (1, 2, male; 3, 4, female); 5-8, *S. laoensis* sp. nov. (5, 6, male; 7, 8, female).



Figs. 9–13. Male and female terminalia of *Sphaerorchestes laokao* sp. nov. (9–11, male; 12, 13, female). — 9, aedeagus, dorsal; 10, aedeagus and tegmen, lateral; 11, sternite 8 and spiculum gastrale; 12, spermatheca; 13, sternite 8. Scale=0.5 mm.

rostrum and venter with first ventrite inflated in middle.

Type materials. Holotype: male. Phou Pan (alt. ca. 1,500 m), Houaphan Prov., Laos, 22–VIII–2009, H. KOJIMA. Paratypes. 2 males and 2 females, same data as the holotype.

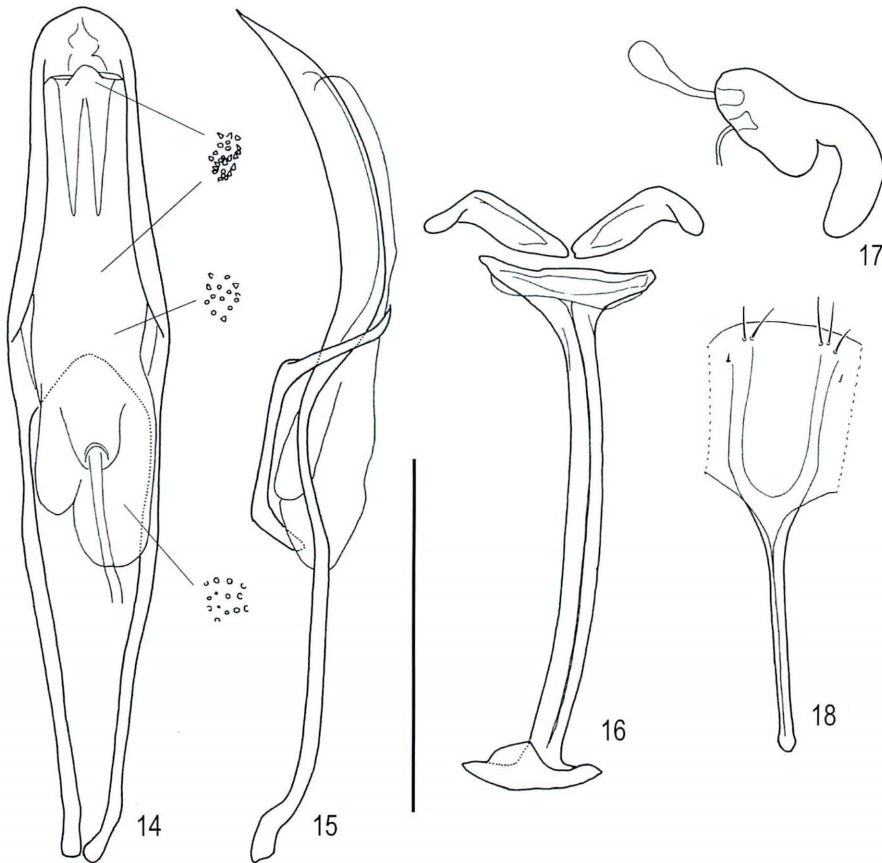
Etymology. Derived from the name of the locality.

Comments. This species is very similar to *S. nepalensis* MORIMOTO et MIYAKAWA, 1996 in the concolorous coloration, but the antennal club is blackish and scales on venter are mostly bi- or trifid in *S. laoensis*.

Biological notes. Weevils were captured on a *Cinnamomum* tree.

Key to the known species of *Sphaerorchestes*

- 1(4) Elytra with a conspicuous black patch formed by blackish setae.
- 2(3) Black patch on elytra crescent, with short incisions on second intervals from anterior margin. Length: 2.5 mm. Japan.



Figs. 14–18. Male and female terminalia of *Sphaerorchestes laeensis* sp. nov. (14–16, male; 17, 18, female). — 14, Aedeagus, dorsal; 15, aedeagus and tegmen, lateral; 16, sternite 8 and spiculum gastrale; 17, spermatheca; 18, sternite 8.

-*S. kawasei* MORIMOTO et MIYAKAWA, 1996
- 3(2) Black patch on elytra V-shaped. Length: 2.4 mm. Borneo (Sabah).
-*S. kojimai* MORIMOTO et MIYAKAWA, 1996
- 4(1) Elytra concolorous or bicolorous without any blackish setaceous patch.
- 5(8) Derm concolorous yellowish red to reddish brown, elytral intervals each with four to six rows of scales.
- 6(7) Yellowish red except for blackish eyes. Length: 2.5–2.8 mm. Nepal.
-*S. nepalensis* MORIMOTO et MIYAKAWA, 1996
- 7(6) Reddish brown except for blackish eyes and antennal club. Length: 2.2–2.5 mm. Laos.
-*S. laeensis* sp. nov.
- 8(5) Derm bicolorous, black, with reddish brown elytra, which are blackish on apical and sometimes basal parts, intervals each with three to four rows of scales.

Length: 1.9–2.2 mm. Laos. *S. laokao* sp. nov.

Host Association of *Sphaerorchestes*

No biological information has ever been available for *Sphaerorchestes*. Two new Laotian representatives herein described were captured on the laurel family trees. Recently, Japanese species, *S. kawasei* was also captured on *Litsea acuminata* of Lauraceae (K. KUME, pers. comm.). These facts suggest that Lauraceae are likely the host of the weevils. This may also be supported by the fact that some species of *Imachra*, a sister group of *Sphaerorchestes* are also known to associate with *Cinnamomum japonicum* and *Machilus thunbergii* of Lauraceae (K. KUME and I. MATOBA, pers. comm.).

Larvae of flea weevils are mostly leaf-miners of young leaves, but, the peculiar features of *Sphaerorchestes* such as the spherical body form and the slender rostrum suggest other habit.

Acknowledgements

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要 約

小島弘昭：ラオス産タマノミゾウムシ属（コウチュウ目ゾウムシ科）の新種。—— タマノミゾウムシ属の分布の空白地帯であったラオスから本属の2新種を発見し、それぞれ *Sphaerorchestes laokao* sp. nov. および *S. laoensis* sp. nov. として命名記載した。本属の生態的知見についてはこれまで知られていなかったが、ラオス産の両種ともクスノキ科の樹木から採集されたこと、日本産種も最近、クスノキ科の1種から見つかっていること（久米私信）、さらに本属の姉妹群と考えられているクチブトノミゾウムシ属の数種もクスノキ科から得られていることなどから勘案して、本属とクスノキ科との関連性が示唆された。

References

- MORIMOTO, K., & S. MIYAKAWA, 1996. Systematics of the flea weevils of the tribe Ramphini (Coleoptera, Curculionidae) from East Asia. I. Descriptions of new taxa and distribution data of some species. *Esakia, Fukuoka*, (36): 61–96.
- KOJIMA, H., & K. MORIMOTO, 1996. Systematics of the flea weevils of the tribe Ramphini (Coleoptera, Curculionidae) from East Asia. II. Phylogenetic analysis and higher classification. *Esakia, Fukuoka*, (36): 97–134.